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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,988	12/05/2003	Yoshiomi Kondoh	081909-0116	7260
23428 7590 12/22/2009 FOLEY AND LARDNER LLP SUITE 500 3000 K STREET NW WASHINGTON, DC 20007				
EXAMINER				
BARTON, JEFFREY THOMAS				
ART UNIT		PAPER NUMBER		
1795				
MAIL DATE		DELIVERY MODE		
12/22/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/727,988

**Applicant(s)**

KONDOH, YOSHIOMI

**Examiner**

Jeffrey T. Barton

**Art Unit**

1795

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 October 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10, 14-16, 20-22 and 28-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 14-16, 20-22, and 28-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Paper No(s)/Mail Date \_\_\_\_\_
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9 October 2009 has been entered.

***Response to Amendment***

2. The amendment filed on 9 October 2009 does not place the application in condition for allowance.

***Status of Rejections Pending Since the Office Action of 11 May 2009***

3. All rejections of claims 11-13, 17-19, 23-25, and 31-34 are obviated by cancellation of the claims.
4. The obviousness-type double patenting rejections of claims 1-10, 14-16, 20-22, and 28-30 are maintained.
5. All other pending grounds of rejection are withdrawn due to Applicant's amendments. New grounds of rejection under 35 U.S.C. §112 are presented.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 2-10, 14-16, 20-22, and 28-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In the specification as originally filed, there is no support for "the 2n pieces of the thermoelectric converter elements adjacent to each other are alternately disposed", when two of the 2n pieces are connected via an electric conduction material and direct current source as recited in lines 6-21 of claim 2. Claims 4, 7, 9, 15, 21, and 29 depend from claim 2 and are therefore rejected on the same grounds.

In addition, in claim 3 at lines 40-43, there is no support in the specification as originally filed for a system being "configured to take out an electric potential energy from a predetermined section of the electric conduction materials", where the electric conduction materials are provided according to the limitations of claim 1. The structure of claim 1 corresponds to instant Figure 2, which has no such configuration. Instant Figure 7, which has the claimed configuration to "take out", lacks the instant direct

current source. No embodiment including both between a single pair of thermoelectric converter elements is present in the original specification. Claims 5, 6, 8, 10, 14, 16, 20, 22, 28, and 30 depend from claim 3, and are therefore rejected on the same grounds

In addition, in claim 4 at lines 45-48, there is no support in the specification as originally filed for a system being "configured to take out an electric potential energy from a predetermined section of one of the electric conduction materials", where the electric conduction materials are provided according to the limitations of claim 2. Claims 7, 9, 15, 21, and 29 depend from claim 4 and are therefore rejected on the same grounds.

9. Claims 1, 3, 5, 6, 8, 10, 14, 16, 20, 22, 28, and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There is no clear antecedent basis for "the electric conduction material" recited in lines 27-28 of claim 1. Two different electric conduction materials were recited earlier in the claim, at lines 9-10 and 19, specifically. Based on what appears to have been Applicant's intent, it is suggested that the recitation at lines 9-10 be amended to recite "a first electric conduction material", the recitation at line 19 be amended to recite "a second electric conduction material", and the recitation at lines 27-28 be amended to recite "the first electric conduction material". Claims 3, 5, 6, 8, 10, 14, 16, 20, 22, 28, and 30 depend from claim 1, and are therefore rejected on the same grounds.

In addition the recitation "wherein the first thermoelectric converter . . . relation  $T_1 > T_2$ " at lines 34-39 of claim 3 appears to be redundant, since the temperature difference had already been claimed in claim 1. It is not clear what further limitation is intended by the recitation. Claims 5, 6, 8, 10, 14, 16, 20, 22, 28, and 30 depend from claim 3, and are therefore rejected on the same grounds.

In addition, the recitation "wherein the first thermoelectric converter element . . . do not alternate with one another" at lines 13-15 of claim 8 is redundant, repeating a limitation already provided at lines 43-46 of claim 1. It is not clear what further limitation is intended by the recitation. Claims 14, 20, and 28 depend from this claim and are therefore rejected on the same grounds.

In addition, there is no explicit antecedent basis for "the electrolization" recited in claims 28 and 30.

10. Claims 2, 4, 7, 9, 15, 21, and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites a limitation "wherein the 2n pieces of the thermoelectric converter elements adjacent to each other are alternately disposed" at lines 27-28, while at lines 6-21, the claim in great detail describes configuration of first and second thermoelectric converter elements that are not alternately disposed in any way. Based on the configuration shown in Figure 11, it appears that some converter elements are intended to be alternately disposed relative to each other, while the two converter elements

having the DC current source are not, but the claim as currently constructed, with the first and second converter elements recited as being among the 2n pieces of thermoelectric converter elements, is indefinite. In addition, it is not clear whether "electric conduction material" recited in line 17 of claim 2 is the same or different from that recited earlier in lines 8-9 of the claim. Also, in lines 29-30, it is not clear whether "the electric conduction material" refers to that recited previously in line 8-9 or line 17 of the claim. Claims 4, 7, 9, 15, 21, and 29 depend from claim 2 and are therefore rejected on the same grounds.

In addition, the limitation of lines 49-52 of claim 4 is redundant, repeating limitations already recited in claim 2 at lines 45-48 of claim 2. It is not clear what further limitation is intended. Also in claim 4, it is not clear whether the "one of" and "another of" the thermoelectric converter elements recited in lines 38-41 correspond to the "first", "second", or other thermoelectric converter elements recited in claim 2. Claims 7, 9, 15, 21, and 29 depend from claim 4 and are therefore rejected on the same grounds.

In addition, in lines 13-14 of claim 9, "an electric potential energy" is recited, and it is not clear whether this is the same electric potential energy already recited in claim 4.

In addition, there is no explicit antecedent basis for "the electrolization" recited in claim 29.

The Examiner has made a good faith effort to identify each instance of indefinite language. Applicant's assistance in finding and correcting any other instances is respectfully requested.

### ***Double Patenting***

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 1-10, 14-16, 20-22, and 28-30 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-15 of copending Application No. 10/537,357. Although the conflicting claims are not identical, they are not patentably distinct from each other because the plurality of elements within the copending application also meets the requirements of the present invention for 2n pieces (see copending claims 2, 3 and 4).



***Response to Arguments***

13. Applicant's arguments filed 11 September 2009 have been fully considered but they are not fully persuasive.

Concerning the previous rejections relying upon the Bijvoets reference, the arguments are persuasive, because the reference fails to teach the instant limitation to a direct current source and electric conduction material electrically connecting the first and second thermoelectric converter elements within systems as claimed in claims 1 and 2.

The provisional obviousness-type double patenting rejection is maintained, because there are still rejections of the claims pending. The remainder of Applicant's remarks is moot in view of the new rejections presented above.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Jeffrey T. Barton whose telephone number is (571)272-1307. The examiner can normally be reached on M-F 9:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeffrey T. Barton/  
Primary Examiner, Art Unit 1795  
16 December 2009